

Applicant/Serial No.: Nicholas F. D'Antonio et al. / 10/056,441
Filed/Conf. No. January 24, 2002 / Conf. No. 2618
Examiner/Group: Ralph A. Lewis / 3732
Response to Office Action mailed: 03 / 14 / 2006
Attorney File: DA9397US.CIP2RE (#90036)

AMENDMENTS TO THE CLAIMS

1. (original) Apparatus for injecting fluid into a desired section of a body having an outer dermis and an inner region including at least a subcutaneous region and for some parts of the body, a muscular region, said apparatus comprising:

a fluid supplying device for supplying fluids at values of pressure and velocity of sufficient magnitude to generate a jet stream, and to inject a substantial amount of the fluid into a selected one of the outer dermis and the inner region; and

a perforator for making a perforation and entering the dermis of the body, said perforator comprised of an elongated tubular member having a first end connected to said fluid supplying device and an opposed sharp second end for perforating the body and dispensing the jet stream of fluid into the perforation, said perforator having an effective length of less than 12.7 mm, said effective length preventing said perforator from perforating the muscular region;

said fluid supplying device having a generally flat face through which said perforator is extendable.

2. (original) Apparatus according to claim 1 wherein said perforator has a longitudinal axis extending from said first end up to said second end, and said second end has a central axis slanted relative to the longitudinal axis of said perforator for enabling said second end to penetrate the dermis and create an anchor point to establish and maintain the penetration position of said second end, and maintain an effective fluid flow of the jet stream even if there is movement of the body being injected.

3. (currently amended) Apparatus according to claim 2 wherein said second end has a surgically sharp end for piercing the dermis.

4. (original) Apparatus according to claim 1, and further comprising:
orifice means positioned in said perforator for generating a coherent stream for flow through said exit portion.

5. (original) Apparatus according to claim 1, wherein said perforator has an effective length of less than 4 mm.

6. (original) Apparatus according to claim 1, wherein said perforator has an effective length of less than 1.5 mm.

7. (original) Apparatus according to claim 1, wherein said perforator has an effective length of less than 9.5 mm.

8. (original) Apparatus according to claim 1, wherein said perforator has an effective length of less than 3.1 mm.

9. (original) Apparatus according to claim 1, wherein said perforator has an effective length of less than 8 mm.

10. (original) Apparatus according to claim 1, wherein said perforator has an effective length of less than 5 mm.

11. (original) Apparatus according to claim 1, wherein said perforator has an effective length of less than 1 mm.

12. (original) Apparatus according to claim 1, wherein said perforator has an effective length of less than 4.7 mm.

13 (original) Apparatus according to claim 1, wherein said perforator has an effective length of less than 2.7 mm.

14. (original) Apparatus according to claim 1, wherein said perforator has an effective length of less than 4.2 mm.

15. (original) Apparatus according to claim 1, wherein said perforator has an effective length of less than 3.6 mm.

16. (original) Apparatus according to claim 1 wherein said perforator is removable and replaceable with another perforator.

17. (original) Apparatus according to claim 1 and further including protective containment means for protectively containing said perforator before and after said perforator makes a perforation and enters the dermis of the body.

18. (currently amended) Apparatus for injecting fluid into a desired section of a body having a dermis and an inner region including at least a subcutaneous region, and for some parts of the body a muscular region, said apparatus comprising:

an electro-mechanical, spring energized fluid supplying device for supplying fluids at values of pressure and velocity of sufficient magnitude to generate a jet stream, and to inject a substantial amount of the fluid into a selected one of the outer dermis and the inner region; and

a perforator for making a perforation and entering the dermis of the body, said perforator comprised of an elongated tubular member having a first end connected to said fluid supplying device and an opposed sharp second end for perforating the body and dispensing the jet stream of fluid into the perforation, said perforator having an effective length of less than 12.7 mm, said effective length preventing said perforator from perforating the muscular region;

said fluid supplying device having a generally flat face through which said perforator is extendable.

19. (new) Apparatus according to claim 1 wherein said fluid supplying device supplies fluids at values of pressure and velocity of sufficient magnitude to generate a jet stream having a pressure in the range of at least 1700 psi.

20. (new) Apparatus according to claim 1 wherein said fluid supplying device supplies fluids at values of pressure and velocity of sufficient magnitude to generate a jet stream having a pressure in the range of at least 6000 psi.

21. (new) Apparatus according to claim 1 wherein said fluid supplying device provides an injection site mark or legend as an indicator that a group of animals or humans have already received a particular injection.

22. (new) Apparatus according to claim 21 wherein the color of the injection site mark or legend can be changed according to the type of injection fluid used and/or the time in which it was delivered.

* * * *